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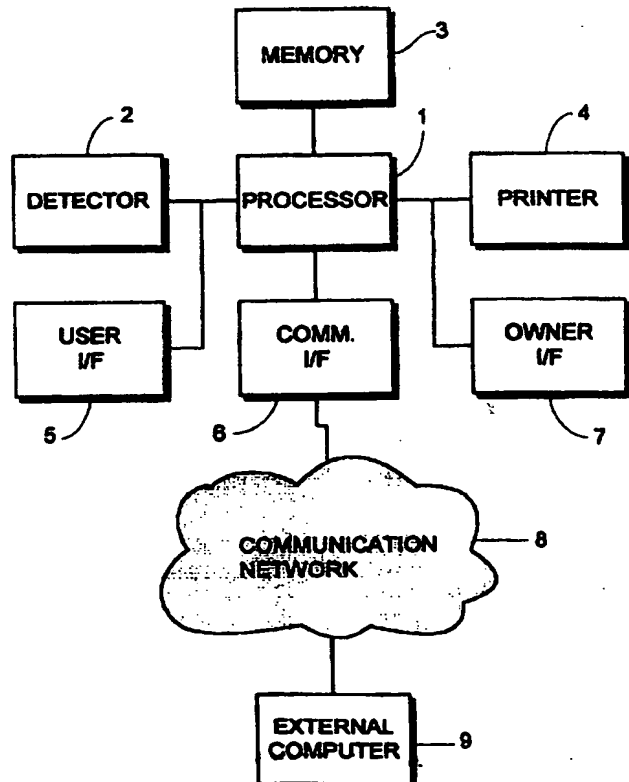
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**(54) Title:** DONATION REDEMPTION SYSTEM

**(57) Abstract**

An arrangement is proposed for making it feasible to donate refunded monetary values to charity, the monetary values being paid as compensation for used commodity objects returned to a reverse vending machine for the purpose of reuse thereof, or for recycling of materials recoverable therefrom. A user-machine interface is adapted to allow a user to decide that the compensation paid is to be devoted partly or completely to charity, and a report system is implemented to keep records of the monetary values collected by the machine and to produce corresponding reports for the recipients thereof.



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## DONATION REDEMPTION SYSTEM

### Technical Field

The present invention generally relates to automated redemption by so-called reverse vending machines, of used commodities returned for the purpose of reuse thereof, or for recycling of materials recoverable therefrom. In particular, the invention relates to a method and apparatus for giving customers the option of donating to charity a monetary amount refunded by such a machine. Also, the invention can give the customer the option of selecting refunding shared between himself and one or more charity organizations, or the like.

### Background Art

A commonly known type of reverse vending machines to which the present invention relates, is that designed for receiving used beverage containers for which the customer paid a deposit when purchased. Today, such machines are installed in almost every major grocery store allowing the customer to return empty bottles and cans, and receive some kind of token, most often a printed coupon, indicating the monetary value of the containers delivered to and accepted by the machine.

In general, a machine of the reverse vending type comprises some kind of verifying means for recognizing and accepting predetermined types of three-dimensional objects being inserted into a port of a corresponding shape and arranged readily accessible in the front of the machine. The verifying means may comprise microcomputer or processing means associated with a memory for storing data corresponding to acceptable returnable objects, and any kind of detection means known in the art for measuring certain predetermined properties identifying acceptable objects expected to be received. Typically, a voucher dispenser or coupon printer is included in the machine.

In use, such a commonly known reverse vending machine is approached by a customer who places – one by one – the objects for which he wishes to receive refunding in the port in the front of the machine. The object inserted is immediately checked by the machine which – dependent on machine design and configuration – issues some kind of token in respect of each individual object inserted being accepted for redemption. The issuance of the token may take place in response to the customer pressing an appropriate button or activates a corresponding switch provided on the front panel of the machine, or automatically after some predetermined length of time has passed since the

last object was inserted into the reception port. Usually, the token produced by the machine takes the form of a coupon or voucher for the customer to tear off, the value of which corresponding to the number and type of objects being accepted. Finally, the voucher(s) thus obtained by the customer can be exchanged for cash at a cash desk or  
5 check-out point, for example.

US Patent No. 5 226 519 in the name of DeWoolfson, discloses a multiple use commodity collection and storage system in which the customer, in the case of a can collection machine, can make a decision when finished inserting all cans, to donate the proceeds  
10 (value or deposit refunds) to charity, or to receive a voucher for subsequent payment in cash. In this prior art publication, however, no indication whatsoever is given as to how to implement such an arrangement, leaving the option merely as a wish.

#### **Disclosure of Invention**

15 The main object of the present invention is to provide an arrangement making the option feasible, of devoting such refunded monetary values, partly or completely, to charity.

Hence, the present invention provides a method of donating a monetary value to charity, the monetary value being paid as compensation for used commodity objects returned to  
20 a reverse vending machine for the purpose of reuse thereof, or for recycling of materials recoverable therefrom, the method according to the invention being characterized in the steps of:

- establishing for the reverse vending machine a user-machine interface adapted to allow a user to decide, when about to insert returned objects into the machine, that  
25 the compensation paid is to be devoted partly or completely to charity,
- implementing for the reverse vending machine report producing means to produce a report on monetary values thus being donated to charity, the report producing means being capable of keeping a record of at least one recipient of the monetary values collected by the machine.

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Also, the invention relates to an apparatus for the same purpose, the apparatus according to the invention being characterized in that:

- the reverse vending machine comprises a user-machine interface (5) adapted to allow a user to decide, when about to insert returned objects into the machine, that the  
35 compensation paid is to be devoted partly or completely to charity, and that

- the apparatus comprises report producing means implemented to produce a report on monetary values thus being donated to charity, the report producing means being capable of keeping a record of at least one recipient of the monetary values collected by the machine.

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The above mentioned and other features and objects of the present invention will appear from the following detailed description of embodiments of the invention given as examples in conjunction with the appended drawing.

#### 10 **Brief Description of Drawings**

The single Figure on the drawing illustrates an embodiment of a donation redemption apparatus according to the invention.

#### **Description of Preferred Embodiments**

- 15 In the Figure, the donation redemption system according to the invention is shown to comprise processing 1, detection 2, and memory 3 means as well as a printer 4 disposed in a machine at a collection site. Also, user-machine 5 and owner-machine 7 interfaces are provided. Typically, the user-machine interface is the form of a front panel readily accessible to customers, whereas the owner-machine interface is hidden to
- 20 customers and comprises as a minimum an ordinary counter mechanism, reset buttons, and the like, accessible to the owner only. In addition, the machine comprises some kind of transport mechanism (not shown), generally a conveyor belt, for moving objects presented to the machine passed its detection means 2.

- 25 Further to this conventional design, the machine according to the invention comprises report producing means either constituting a part of the machine itself, or implemented in combination with an external computer 9 connected to the machine through a communication interface 6. The external computer may be located at the site of the machine, or remotely in a report centre for the charity organization(s) in question, a bank, or other
- 30 centralized location. In the latter case, and as shown in the Figure, the communication interface is adapted to allow for communication with the remote computer 7 through a corresponding communication network 8. Typically, a data communication modem can be used for telecommunicating via a public telephone or data network, a dedicated network, or leased communication lines.

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In the machine of the system according to the invention, the processing means 1 is a processor capable of being operated according to software loaded from the associated memory 3, or otherwise loaded software. The memory is designed to hold software for the operation of the processor 1, data processed by the processor, data describing allowable objects, and at least one register of the number and types of objects being accepted under customer "sessions" (see below). Also, in the machine according to the invention, the memory 3 is adapted to hold one or more registers pertaining to respective charity organizations.

The detection means 2 may comprise mechanical, optical and/or acoustic devices, included means for weighing, assemblies of acoustic emitters and/or receivers, and/or optical light sources and receivers, sensors, scanners or readers, possibly of laser or holographic type. The printer 4 is of any type known in the art for printing vouchers and value coupons which is adapted also to be used for printing simple reports at the command of the owner of the machine. The man-machine interfaces 5, 7 are designed to ensure simple communication between the machine and the customer and owner, respectively, and may comprise push-buttons, switches, lamps, and/or a display, e.g. of the LCD type. According to the invention, the user-machine interface 5 may comprise one or more special buttons or keys disposed on the front panel and designated charity donation.

The main task of the report producing means mentioned above is to produce reports on the monetary value which has been donated to a recipient. Such reports may be prepared periodically or on request by authorized persons, and in the case of a plurality of recipients, reports are made for each individual recipient. To this end, the report producing means typically comprises an owner-machine interface 7 through which an authorized person can communicate with a report system implemented basically in the software of the machine and stored in its memory 3, for example. To be capable of producing the above reports, the report system keeps a record for each of the recipients, of the donations collected by the machine in question. In one embodiment, such as that shown in the Figure, a command may be entered through the owner-machine interface 7 to initiate the preparation of a report, which then is printed by the printer 4 included in the machine. In a much simplified embodiment (not shown) the record-keeping system may be comprised of simple mechanical counters only, the values of which being readable by the authorized person just like reading an electric consumption meter, for example.

Alternatively, the report system software may at least partly be implemented in the external computer 9, and the data produced by the processor 1 of a machine which forms the basis for such reports, may be stored in the memory 3 of that machine, or be transferred (periodically, or when needed) to the external computer for processing. Also, some kind of polling via the communication network 8 from a centralized computer 9, of a plurality of reverse vending machines may be arranged for, the individual machines themselves then storing at least the data needed for producing such reports.

In a much simplified embodiment (not shown), the integrated report system described above could be replaced by one in which the monetary amount to be donated is indicated only on the receipt or coupon, in bar codes, for example, issued by a machine of the invention, the customer then bringing the receipt/voucher to the cash desk or check-out point for the registration of the donation with the shop cash desk system at the same time as he exchanges possible excess amounts for cash. In fact, such a simplified mode of operation could be useful in the case of faulty operation of the automated report system, for example.

In use, as with a conventional reverse vending machine, the customer inserts the returned objects into the port in the front of the machine. As an example, in one embodiment of the invention, a typical "user session" comprising the successive insertion of a given number of objects, can be as follows: When having inserted the number of objects the refund of which he wishes to devote to charity, the customer presses the "donation" button marked with the charity purpose or organization he wishes to support, to effect donation of the compensation paid so far, and then continues inserting objects the refund of which he wishes to keep himself. When all objects are inserted the session may be ended by pressing the "print coupon" button, or a receipt may be printed automatically a predetermined length of time after the last object was inserted (if this latter procedure is implemented, a "print coupon" button is not needed on the machine front panel). Hence, in this example, the steps of the user session are as follows:

- Insert objects – press donation key – continue insert objects – end (manually or automatically) – print coupon.

According to the invention, several variations exist; for example:

- A. The machine may itself be "devoted" to charity, i.e. all compensation paid through the machine is transferred automatically by the donation system of the invention to

a charity organization, or the like. In such a case the machine may be fully automatic having no buttons on the front panel.

B. The machine may be structured as explained above, i.e. leaving it up to the customer to decide the amount to be donated through the system of the invention.

5 In such a case the front panel of the machine may be provided with one or more "donation", possibly "end donation", buttons or keys identifying the respective recipients, possibly giving the customer a choice also between recipients to benefit from his contribution.

10 Then, in case A, the steps of the user session are as follows:

– (approach the donation machine) – insert objects – (end automatically) – print receipt (if implemented), and

in case B, the steps may be:

15 – Insert objects – select among donation keys – continue insert objects – end (manually or automatically) – print coupon,

– Insert objects – select among donation keys and end (manually or automatically) – print receipt (the entire compensation being donated),

– Select among donation keys – insert objects – end (manually or automatically) – print receipt (if implemented) (the entire compensation being donated).

20 – Insert objects – select among end donation keys – continue insert objects – end (manually or automatically) – print coupon.

For the time being, the present invention is considered as being particularly useful in the context of redeemable commodities for which a specific deposit was paid when purchased. The invention, however, is applicable to automated redemption of nearly any  
25 kind of used and recognisable commodity. If compensation was paid for the return of other objects that often are regarded as waste or litter, such as "disposable" articles, "disposable" glass containers, carton/paperboard boxes and other packaging material, for example, the ordinary customer would be encouraged to bring his "waste", whether  
30 reusable or recyclable, or not, to collection sites. In this case, the present invention may equally well be used in a system for collecting such used commodities at large regardless of whether a specific deposit was paid upon purchase, or not.



**Claims**

1. A method of donating a monetary value to charity, the monetary value being paid as compensation for used commodity objects returned to a reverse vending machine for the purpose of reuse thereof, or for recycling of materials recoverable therefrom,  
5 characterized in that the method comprises the steps of:
  - establishing for said reverse vending machine a user-machine interface adapted to allow a user to decide, when about to insert returned objects into the machine, that the compensation paid is to be devoted partly or completely to charity,
  - 10 - implementing for said reverse vending machine report producing means to produce a report on monetary values thus being donated to charity, said report producing means being capable of keeping a record of at least one recipient of said monetary values collected by the machine.
- 15 2. A method according to claim 1,  
characterized in that the method comprises the steps of:
  - providing for said user-machine interface at least one special button or key disposed on the front panel of the machine and designated charity donation,
  - establishing an owner-machine interface hidden to customers, for ensuring owner's  
20 access to said report producing means, and enabling the owner reading of a report produced by said report means, on monetary values donated to said at least one recipient, or initiation of the preparation of such a report.
3. A method according to claim 1 or 2,  
25 characterized in that the step of implementing said report producing means involves the installation of report system software on the machine itself and/or an external computer connected to the machine through a communication interface, and optionally being located at the site of the machine or remotely in a report centre for the charity organization(s) in question, or other centralized location.
- 30 4. A method according to claim 1,  
characterized in that the step of establishing said user-machine interface involves the mounting on the machine front panel one or more special buttons or keys designated charity donation to give the user the option of indicating by pressing one  
35 such special button that compensation paid for all precedingly, or succeedingly, inserted objects is to be devoted to charity, and in the case of more such buttons, the option of

indicating by pressing a selected one of said special buttons, which charity organization or purpose to be the recipient of the donation.

5. An apparatus for the donation of a monetary value to charity, the monetary value being paid as compensation for used commodity objects returned to a reverse vending machine for the purpose of reuse thereof, or for recycling of materials recoverable therefrom,

characterized in that:

- said reverse vending machine comprises a user-machine interface (5) adapted to allow a user to decide, when about to insert returned objects into the machine, that the compensation paid is to be devoted partly or completely to charity, and that
- said apparatus comprises report producing means implemented to produce a report on monetary values thus being donated to charity, said report producing means being capable of keeping a record of at least one recipient of said monetary values collected by the machine.

6. An apparatus according to claim 5,

characterized in that said user-machine interface comprises one or more special buttons or keys disposed on the front panel of the machine and designated charity donation to give the user the option of indicating by pressing one such special button that compensation paid for all precedingly, or succeedingly, inserted objects is to be devoted to charity, and in the case of more such buttons, the option of indicating by pressing a selected one of said special buttons, which charity organization or purpose to be the recipient of the donation.

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7. An apparatus according to claim 5 or 6,

characterized in that it comprises an owner-machine interface hidden to customers, for ensuring owner's access to said report producing means, and enabling the owner reading of a report produced by said report means, on monetary values donated to said at least one recipient, or initiation of the preparation of such a report.

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–8. An apparatus according to claim 5 or 7,

characterized in that said report producing means is adapted to keep a record for each of the recipients of monetary values collected by the apparatus, and

in the case of a plurality of recipients, produce reports for each individual recipient periodically, or upon a command entered through said owner-machine interface, or both.

9. An apparatus according to claim 8,
- 5 characterized in that said report producing means at least partly is implemented in an external computer 9, and that the data produced by a processor (1) of the apparatus and which forms the basis for such reports, is transferred to the external computer for processing.

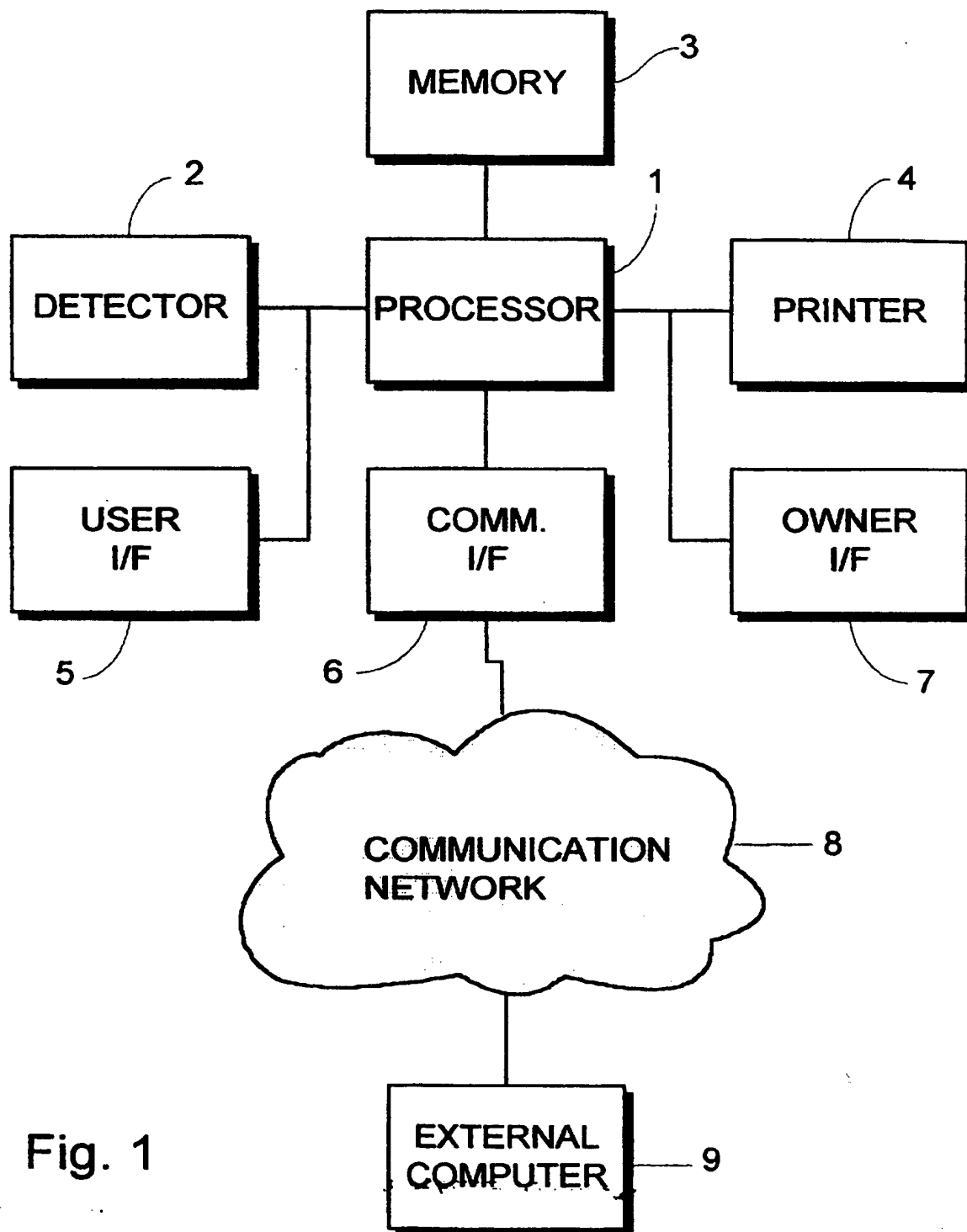


Fig. 1

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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/NO 97/00140

## A. CLASSIFICATION OF SUBJECT MATTER

IPC6: G07F 7/06

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: G07F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5226519 A (DEWOOLFSON), 13 July 1993 (13.07.93), column 8, line 15 - line 19 --	1-9
Y	US 5506393 A (ZIARNO), 9 April 1996 (09.04.96), column 9, line 39 - line 67 --	1-9
A	US 5466919 A (HOVAKIMIAN), 14 November 1995 (14.11.95) -----	1-9

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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**INTERNATIONAL SEARCH REPORT**  
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06/08/97

International application No.  
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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